



# Esophageal Perforation During Intra-gastric Balloon Therapy: Management of a Patient with Late Referral

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## Introduction

Minimally invasive treatment modalities like intra-gastric balloon therapy (IBT) gained popularity in the treatment of obesity [1]. Some morbidities have been reported in the literature, but it is limited.

Esophageal perforation is the most feared complication of the procedure. Although endoscopic stent placement can be chosen as a treatment option in stable patients, most of the patients are treated with surgical drainage and primary repair [2].

We report an unusual case of intra-gastric balloon placement complicated with esophageal perforation which was successfully treated with a surgical approach after late referral.

### Key Points

- Intra-gastric balloon therapy has been gaining popularity as a new modality for treatment of obesity.
- There is always a potential risk of serious complications like gastric or esophageal perforation which can result in unfavorable outcomes.
- This is the first case reporting successful management of an esophageal perforation with late referral after intra-gastric balloon placement therapy.

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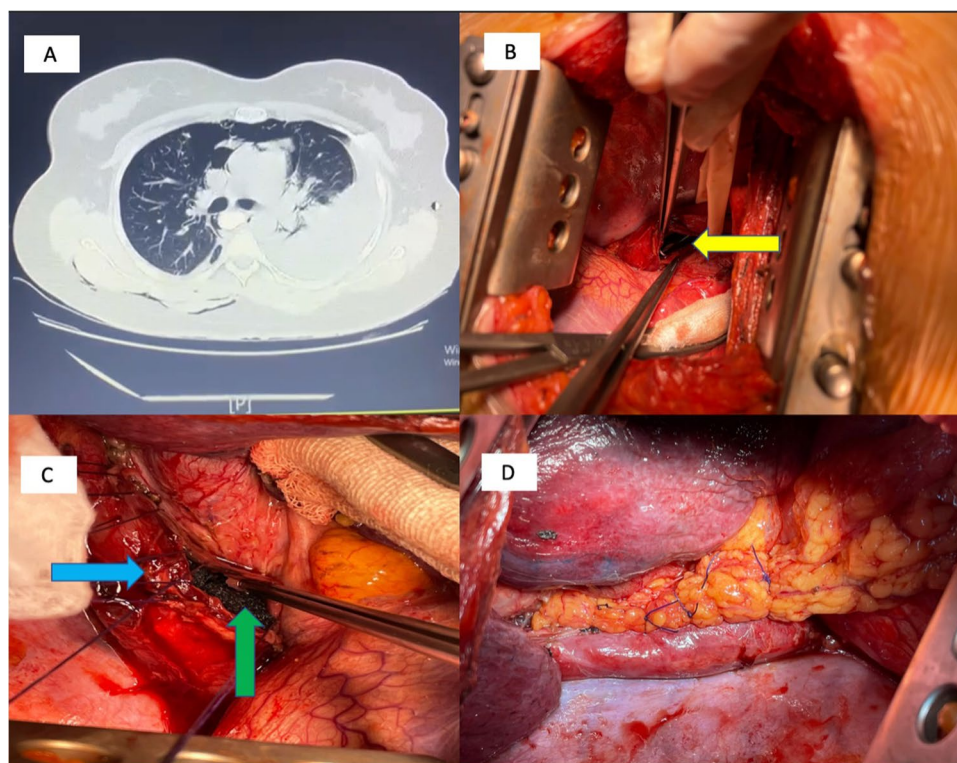
## Case Presentation

A 35-year-old female patient with a BMI of 40 underwent intra-gastric balloon placement in another hospital which was complicated with esophageal perforation. Subsequently, an esophageal stent was placed to manage perforation; then, the patient was transferred to our institution after 24 h.

After initial resuscitation, CT scan of the chest showed massive pneumomediastinum with left pleural effusion and right hydropneumothorax consistent with severe esophageal leak. Following the initial evaluation, the patient was taken to the operating room immediately for emergent surgery. The stent was removed, and an esophageal tear was detected between 30 and 36th cm from incisors. Subsequently right posterolateral thoracotomy was performed and a full-thickness tear in the esophageal wall was detected. Perforation was primarily closed in a two-layered manner with interrupted 2/0 Vicryl sutures. Then, the repair area was buttressed with omental and intercostal pedicle flaps. Endoluminal vacuum therapy (EVAC) was performed under direct vision (Fig. 1.) After the closure of the thorax, laparoscopic jejunostomy was performed. During the preoperative period, meropenem and metronidazole were started as broad spectrum antibiotics. On 4th postoperative day (POD), the patient was weaned off vasopressors and she was extubated on the 6th POD.

EVAC was removed on the 7th POD. A barium esophagogram was ordered on the 12th POD which demonstrated no esophageal leak. Diet of the patient was improved gradually without any problems. She was discharged home on the 16th POD with outpatient follow-up visit. She remained asymptomatic after 3 months of follow-up.

**Fig. 1** **A** Preoperative CT scan of the chest showing mediastinal emphysema, left pleural effusion, and right hydropneumothorax. **B** Perioperative image showing esophageal perforation area between DeBakey forceps (yellow arrow). **C** Perioperative image showing primary sutures for closing perforation area (blue arrow) and endoluminal vac (green arrow) inserted under direct vision before closing the defect. **D** Perioperative image showing the final appearance after repair of the esophagus. Omental flap is wrapped around the esophagus



## Discussion

Obesity is growing in severity over the last decade. Although good results are usually reached within the first 6 months with non-surgical options, most of the weight loss is not maintained afterwards [3]. Patients with morbid obesity are usually treated with bariatric surgery. IBT has been preferred as a non-surgical treatment option for the patients who do not meet with the criterion for bariatric surgery.

Serious complications like gastric ulceration or perforation, intestinal obstruction due to balloon deflation, and rarely esophageal perforation can be seen. Although Nijhof et al. reported a case of esophageal perforation following difficult insertion of the balloon, it was reported 17 years ago [3]. Types and techniques of IBT evolved, are now up-to-date, and have gained popularity resulting in as evidenced by their incorporation into daily routine in the outpatient clinics. This is the first publication reporting an esophageal perforation due to IBT in the era with remarkable evolution and experience of this treatment method. Additionally, this case also gives insight about the successful management of a perforation patient with late referral after 24 h. Physicians should maintain awareness of this serious complication and be ready to act effectively for its management.

## Conclusion

In conclusion, intragastric balloon placement may be performed with minimal complications. If esophageal perforation is suspected after the introduction of an intragastric balloon, it is important to order diagnostic modalities for an urgent treatment plan.

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**Data Availability** Data that support the findings of this article are available from the corresponding author, upon reasonable request.

## Declarations

**Conflict of Interest** The authors declare no competing interests.

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